Patent Claims:

1. A method of detecting a first signal in a received signal (y) using a pattern ($\hat{s}$), the received signal (y) comprising at least one signal group ($y^{(1)}$, ..., $y^{(J)}$), each signal group comprising a number (K) of signal symbols, the pattern ($\hat{s}$) comprising at least one pattern group ($\hat{s}^{(1)}$, ..., $\hat{s}^{(J)}$), each pattern group comprising at least a number (K) of pattern symbols, wherein the method comprises the steps of:

- for each signal group ($y^{(1)}$, ..., $y^{(J)}$) multiplying each signal symbol with a corresponding pattern symbol of a pattern group ($\hat{s}^{(1)}$, ..., $\hat{s}^{(J)}$) and deriving a sum (Σ_1, ..., Σ_J; A_j) of the products of multiplication,
- applying a weight factor (x_1, ..., x_J; $\hat{C}_j$) of one or more weight factors (x_1, ..., x_J; $\hat{C}_j$) to each sum (Σ_1, ..., Σ_J; A_j) giving a weighted sum ($x_1\Sigma_1$, ..., $x_J\Sigma_J$; $A_j/\hat{C}_j$), where said one or more weight factors (x_1, ..., x_J; $\hat{C}_j$) are selected to preserve an orthogonality relation of said pattern symbols of the at least one pattern group, and
- determining if a signal is detected or not based on said one or more weighted sums ($x_1\Sigma_1$, ..., $x_J\Sigma_J$; $A_j/\hat{C}_j$).

2. A method according to claim 1, characterized in that said step of determining if a signal is detected or not comprises

- adding said one or more weighted sums ($x_1\Sigma_1$, ..., $x_J\Sigma_J$; $A_j/\hat{C}_j$) giving a first result ($x_1\Sigma_1 + ... + x_J\Sigma_J$; $\Sigma_{j=1}^{J} A_j/\hat{C}_j$; $\Sigma_{j=1}^{J} CA_j/\hat{C}_j$), and
- comparing said first result with a detection threshold (τ, τ_{FAR}) in order to determine whether said signal is detected or not.

3. A method according to claim 2, characterized in that said detection threshold (τ, τ_{FAR}) is derived based on a signal to interference ratio of a common pilot channel (CPICH).

4. A method according to claim 2, characterized in that said detection threshold (τ, τ_{FAR}) is derived based on a signal to interference ratio, where the interference is estimated on the basis of symbols of the received signal (y) that should be zero.

5. A method according to claims 2 - 4, c h a r a c t e r i z e d in that said detection threshold (τ_{FAR}) is derived based on a false detection rate factor (I_{FAR}) and a standard deviation (σ_ϵ) of the interference of the received signal (y).

6. A method according to claims 1 – 5, c h a r a c t e r i z e d in that said one or more weight factors (x_1, ..., x_J; $\hat{C}_j$) are derived on the basis of a signal to interference ratio (SIR) calculated for a common pilot channel (CPICH).

7. A method according to claim 6, c h a r a c t e r i z e d in that said signal to interference ratio (SIR) calculated for a common pilot channel (CPICH) is dependent on an estimate of the interference ($N_f^{(j)}$) for a given finger (f) and a given group (j), where said method further comprises the step of:

- averaging the estimate of the interference ($N_f^{(j)}$) over a predetermined number of groups before deriving said one or more weight factors (x_1, ..., x_J; $\hat{C}_j$) on the basis of the signal to interference ratio (SIR) calculated for the common pilot channel (CPICH).

8. A method according to claims 1 - 7, c h a r a c t e r i z e d in that said first signal is an acquisition indicator channel (AICH) signal or a collision detection/channel assignment indicator channel (CD/CA-ICH).

9. A method according to claims 1 – 8, c h a r a c t e r i z e d in that said received signal (y) is an estimated signal ($\Sigma_{f=1}^{F} y_{k,f}^{(AICH)} w_{k,f}^{*}$) derived on the basis of one or more weighted channel estimates ($w_{k,f}$) and of de-spread symbols ($y_{k,f}^{(AICH)}$) from a RAKE, wherein the one or more weighted channel estimates ($w_{k,f}$) are based on a common pilot channel (CPICH).

10. A method according to claims 1 – 9, c h a r a c t e r i z e d in that said received signal (y) comprises two or three signal groups and that the pattern ($\hat{s}$) comprises at least two or three pattern groups.

11. A device for detecting a first signal in a received signal (y) using a pattern ($\hat{s}$), the received signal (y) comprising at least one signal group ($y^{(1)}$, ..., $y^{(J)}$), each signal group comprising a number (K) of signal symbols, the pattern ($\hat{s}$) comprising at least one pattern group ($\hat{s}^{(1)}$, ..., $\hat{s}^{(J)}$), each pattern group

comprising at least a number (K) of pattern symbols, wherein the device comprises:

- means (201, 201a, 201b) adapted to for each signal group ($y^{(1)}$, ..., $y^{(J)}$) to multiply each signal symbol with a corresponding pattern symbol of a pattern group ($\hat{s}^{(1)}$, ..., $\hat{s}^{(J)}$) and to derive a sum (Σ_1, ..., Σ_J; A_j) of the products of multiplication,
- means (202, 202a, 202b) for applying a weight factor (x_1, ..., x_J; $\hat{C}_j$) of one or more weight factors (x_1, ..., x_J; $\hat{C}_j$) to each sum (Σ_1, ..., Σ_J; A_j) giving a weighted sum ($x_1\Sigma_1$, ..., $x_J\Sigma_J$; $A_j/\hat{C}_j$), where said one or more weight factors (x_1, ..., x_J; $\hat{C}_j$) are selected to preserve an orthogonality relation of said pattern symbols of the at least one pattern group, and
- means (102; 103) for determining if a signal is detected or not based on said one or more weighted sums ($x_1\Sigma_1$, ..., $x_J\Sigma_J$; $A_j/\hat{C}_j$).

12. A device according to claim 11, characterized in that said means (102; 103) for determining if a signal is detected or not further comprises

- a summation circuit (203) for adding said one or more weighted sums ($x_1\Sigma_1$, ..., $x_J\Sigma_J$; $A_j/\hat{C}_j$) giving a first result ($x_1\Sigma_1$ + ...+ $x_J\Sigma_J$; $\Sigma_{j=1}^{J} A_j/\hat{C}_j$; $\Sigma_{j=1}^{J} CA_j/\hat{C}_j$), and
- detection means (204) for comparing said first result with a detection threshold (τ,τ_{FAR}) in order to determine whether said signal is detected or not.

13. A device according to claim 12, characterized in that the device further comprises processing means (103) for deriving said detection threshold (τ,τ_{FAR}) based on a signal to interference ratio of a common pilot channel (CPICH).

14. A device according to claim 12, characterized in that said device further comprises processing means (103) for deriving said detection threshold (τ,τ_{FAR}) on the basis of a signal to interference ratio and for estimating the interference on the basis of symbols of the received signal (y) that should be zero.

15. A device according to claims 12 - 14, characterized in that the device further comprises processing means (103) for deriving said detection

threshold (τ_{FAR}) based on a false detection rate factor (I_{FAR}) and a standard deviation (σ_ε) of the interference of the received signal (y).

16. A device according to claims 11 – 15, characterized in that the device further comprises processing means (103) for deriving one or more weight factors (x_1, ..., x_J; $\hat{C}_j$) on the basis of a signal to interference ratio (SIR) calculated for a common pilot channel (CPICH).

17. A device according to claim 16, characterized in that said signal to interference ratio (SIR) calculated for a common pilot channel (CPICH) is dependent on an estimate of the interference ($N_f^{(j)}$) for a given finger (f) and a given group (j), where said processing means (103) is further adapted to:

- average the estimate of the interference ($N_f^{(j)}$) over a predetermined number of groups before deriving said one or more weight factors (x_1, ..., x_J; $\hat{C}_j$) on the basis of the signal to interference ratio (SIR) calculated for the common pilot channel (CPICH).

18. A device according to claims 11 - 17, characterized in that said first signal is an acquisition indicator channel (AICH) signal or a collision detection/channel assignment indicator channel (CD/CA-ICH).

19. A device according to claims 11 – 18, characterized in that the device further comprises a combiner circuit (101) for deriving said received signal (y) as an estimated signal ($\sum_{f=1}^{F} y_{k,f}^{(AICH)} w_{k,f}^{*}$) derived on the basis of one or more weighted channel estimates ($w_{k,f}$) and of de-spread symbols ($y_{k,f}^{(AICH)}$) from a RAKE, wherein the one or more weighted channel estimates ($w_{k,f}$) is based on a common pilot channel (CPICH).

20. A device according to claims 11 – 19, characterized in that said received signal (y) comprises two or three signal groups and that the pattern (ŝ) comprises at least two or three pattern groups.

21. A computer readable medium having stored thereon instructions for causing one or more processing units to execute the method according to any one of claims 1 – 10.